

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Mule, et al.

Group Art Unit: To be assigned (2874 Parent)

Serial No.: To be assigned (10/135,314 Parent)

Examiner: To be assigned (Phan T.H. Palmer Parent)

Filed: 12/11/03 (4/29/02 Parent)

Docket No.: 62004-1851

For: Backplane, Printed Wiring Board, and/or Multi-Chip Module-Level Optical Interconnect Layer having Embedded Air-Gap Technologies and Methods of Fabrication

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Sir:

This information disclosure statement is filed in accordance with 37 C.F.R. §§ 1.56, 1.97, and 1.98, and specifically:

- ☒ under 37 CFR 1.97(b), or
(within Three months of filing national application; or date of entry of international application; or before mailing date of first office action on the merits; whichever occurs last)
- ☐ under 37 CFR 1.97(c) together with either a:
☐ Statement Under 37 C.F.R. 1.97(e), or
☐ a \$180.00 fee under 37 CFR 1.17(p), or
 (After the CFR 1.97(b) time period, but before the final office action or notice of allowance, whichever occurs first)
- ☐ under 37 CFR 1.97(d) together with a:
☐ Statement under 37 CFR 1.97(e), and
☐ a \$180.00 petition fee set forth in 37 CFR 1.17(p).
 (Filed after final office action or notice of allowance, whichever occurs first, but before payment of the issue fee)

Enclosed is a check in the amount of \$. Please charge \$ to deposit account . At any time during the pendency of this application, please charge any fees required to Deposit Account 20-0778 pursuant to 37 CFR 1.25. The Commissioner is hereby requested to credit any overpayment to Deposit Account No. 20-0778.

- ☒ Applicant(s) submit herewith *Form PTO 1449A - Information Disclosure Statement by Applicant* together with copies of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may or may not be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56. As required by 37 C.F.R. §1.98(a), a legible copy of each document is provided.
- ☐ A concise explanation of the relevance of foreign language patents, foreign language publications and other foreign language information listed on PTO Form 1449, as presently understood by the individual(s) designated in 37 CFR 1.56(c) most knowledgeable about the content is given on the attached sheet, or where a foreign language patent is cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action which indicates the degree of relevance found by the foreign office is listed on the form PTO 1449 and is enclosed herewith.

The following rights are reserved by the Applicant(s): the right to establish the patentability of the claimed invention over any of the listed documents should they be applied as reference, and/or the right to prove that some of these documents may not be prior art, and/or the right to prove that some of these documents may not be enabling for the teachings they purport to offer.

This statement should not be construed as a representation that an exhaustive search has been made, or that information more material to the examination of the present application does not exist. Any statements or identifications regarding the relevance of any portion(s) of cited references should not be construed as a representation that the most relevant portion(s) have been identified, and the absence of such statements or identifications should not be construed as representations that there are no relevant portion(s). The Examiner is specifically requested not to rely solely on the materials submitted herewith. The Examiner is requested to conduct an independent and thorough review of the documents, and to form independent opinions as to their significance.

It is requested that the information disclosed herein be made of record in this application and that the Examiner initial and return a copy of the enclosed PTO-1449 to indicate the documents have been considered.

Respectfully Submitted,

**THOMAS, KAYDEN, HORSTEMEYER
& RISLEY, L.L.P.**

By:



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EXPRESS MAIL

I hereby certify that this correspondence is being deposited with the United States Postal Service as "Express Mail Post Office to Addressee" in an envelope addressed to: Commissioner for Patent, Mail Stop Patent Application, P.O. Box 1450, Alexandria, VA, on December 11, 2003.

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Signature/Jo Bryan

Form PTO-1449

INFORMATION DISCLOSURE CITATION*(Use several sheets if necessary)*Attorney Docket No.
62004-1851Serial No.
To be assigned
(10/135,314 Parent)Applicant
Mule, et al.Filing Date: 12/11/03
(4/29/02 Parent)Group
TBA (2874 Parent)**U.S. PATENT DOCUMENTS**

Examiner Initials	Item	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	A	4,732,446	3/22/88	Gipson, et al.	350	96.15	10/2/85
	B	4,943,136	7/24/90	Alexander A. Popoff	350	96.16	12/9/88
	C	5,037,173	8/6/91	Sampsell, et al.	385	17	11/22/89
	D	5,039,189	8/13/91	Lytel, et al.	385	2	4/6/90
	E	5,073,000	12/17/91	Dennis Derfiny	385	14	5/21/90
	F	5,101,460	3/31/92	Fred V. Richard	385	37	9/4/90
	G	5,159,770	10/27/92	Reid, deceased et al.	385	14	3/13/91
	H	5,224,184	6/29/93	Boudreau	385	35	5/21/91
	I	5,245,680	9/14/93	Gerald F. Sauter	385	24	2/5/93
	J	5,296,950	3/22/94	Lin et al.	359	9	1/31/92
	K	5,263,111	11/16/93	Nurse et al.	385	130	2/26/92

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	L	Chen, et al.; Fully Embedded Board-Level Guided-Wave Optoelectronic Interconnects; June, 2000; Proceedings of the IEEE, Vol. 88, No. 6; pp 780-793
	M	Wiesmann, et al.; Singlemode Polymer Waveguides For Optical Backplanes; December 5, 1996; Electronics Letters, Vol. 32, No. 25; pp 2329-2330
	N	Barry, et al.; Highly Efficient Coupling Between Single-Mode Fiber and Polymer Optical Waveguides; August, 1997; IEEE Transactions on Components, Packaging, and Manufacturing Technology – Part B, Vol. 20, No. 3; pp 225-228
	O	Lee, et al.; Fabrication of Polymeric Large-Core Waveguides for Optical Interconnects Using a Rubber Molding Process; January, 2000; IEEE Photonics Technology Letters, Vol. 12, No. 1; pp 62-64
	P	Schneider, et al.; Electro-Optical Printed Circuit Board (EOPCB); 2000 Electronic Components and Technology Conference; pp 749-753
	Q	Mederer, et al.; 3Gb/s Data Transmission With GaAs VCSELs Over PCB Integrated Polymer Waveguides; September, 2000; IEEE Photonics Technology Letters, Vol. 13, No. 9; pp 1032-1034

* EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.

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(2874 Parent)**U.S. PATENT DOCUMENTS**

Examiner Initials	Item	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	R	5,276,762	1/4/94	Hartman, et al.	385	137	3/2/92
	S	5,296,950	3/22/94	Lin, et al.	359	9	1/31/92
	T	5,313,536	5/17/94	Rossi, et al.	385	14	12/15/92
	U	5,337,388	8/9/94	Jacobowitz, et al.	385	76	8/3/93
	V	5,371,820	12/6/94	Welbourn, et al.	385	76	1/9/92
	W	5,396,573	3/7/95	Ecker, et al.	385	88	8/3/93
	X	5,408,567	4/18/95	Hamilton	385	132	12/1/93
	Y	5,416,861	5/16/95	Koh, et al.	385	14	4/29/94
	Z	5,418,360	5/23/95	Sokolowska, et al.	250	227.12	1/21/94
	AA	5,432,630	7/11/95	Lebby, et al.	359	152	9/11/92
	BB	5,442,475	8/15/95	Bausman, et al.	359	140	4/21/94

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							Yes	No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	CC	Schröder, et al.; Polymer Optical Interconnects for PCB; 2001; Session 13: Photonic Polymers II; pp 337-343
	DD	Glukh, et al.; High-performance Polymeric Materials for Waveguide Applications; August, 2000; SPIE – The International Society for Optical Engineering, Linear, Nonlinear and Power Limiting Organics, San Diego, Volume 4106; pp 1-11
	EE	Liu, et al.; Plastic VCSEL Array Packaging and High Density Polymer Waveguides for Board and Backplane Optical Interconnect; 1998; Electronic Components and Technology Conference; pp 999-1005

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	FF	5,450,508	9/12/95	Decusatis, et al.	385	25	12/8/94
	GG	5,469,518	11/21/95	Song, et al.	385	89	12/15/94
	HH	5,499,311	3/12/96	Casimer M. DeCusatis	385	89	12/16/94
	II	5,521,992	5/28/96	Chun, et al.	385	14	8/1/94
	JJ	5,548,771	8/20/96	Lin, et al.	395	800	10/14/94
	KK	5,568,574	10/22/96	Tanguay, Jr., et al.	385	14	6/12/95
	LL	5,611,014	3/11/97	Nagesh R. Basavanhally	385	90	12/7/94
	MM	5,649,045	7/15/97	Fjare, et al.	385	145	12/13/95
	NN	5,652,811	7/29/97	Cook, et al.	385	14	3/6/96
	OO	5,659,641	8/19/97	DeMeritt, et al.	385	14	12/22/95
	PP	5,757,989	5/26/98	Yoshimura, et al.	385	14	9/10/93
	QQ	5,761,350	6/2/98	Seungug Koh	385	14	1/22/97
	RR	5,774,614	6/30/98	Gilliland, et al.	385	88	7/16/96
	SS	5,835,646	11/10/98	Yoshimura, et al.	385	14	8/9/96
	TT	5,841,927	11/24/98	Watanabe, et al.	385	129	9/16/94
	UU	5,842,881	12/1/98	Ecker, et al.	439	329	8/3/93
	VV	5,854,868	12/29/98	Yoshimura, et al.	385	50	8/9/96
	WW	5,864,642	1/26/99	Chun, et al.	385	14	2/10/97
	XX	5,902,715	5/11/99	Tsakamoto, et al.	430	290	4/2/97
	YY	5,923,451	7/13/99	Karstensen, et al.	359	163	9/26/95
	ZZ	5,929,518	7/27/99	Andrew J. Schlaiss	257	712	7/20/97

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	aa	6,049,639	4/11/00	Paniccia, et al.	385	14	12/19/97
	bb	6,052,498	4/18/00	Mario J. Paniccia	385	14	12/19/97
	cc	6,065,881	5/23/00	Okada, et al.	385	88	10/2/98
	dd	6,071,017	6/6/00	Gilliland, et al.	385	93	6/10/98
	ee	6,081,632	6/27/00	Yoshimura, et al.	385	5	10/16/97
	ff	6,141,072	10/31/00	Drabik, et al.	349	122	4/2/98
	gg	6,162,838	12/19/00	Paul A. Kohl	521	77	6/4/99
	hh	6,165,890	12/26/00	Kohl, et al.	438	619	1/21/98
	ii	6,179,627	1/30/01	Daly, et al.	439	76.1	9/25/98
	jj	6,185,648	2/6/01	Munoz-Bustamante, et al.	710	126	3/31/99
	kk	6,215,585	4/10/01	Yoshimura, et al.	359	344	2/6/98
	ll	6,226,429	5/1/01	Hikita, et al.	385	50	9/15/00
	mm	6,285,813	9/4/01	Schultz, et al.	385	37	10/2/98
	nn	6,332,050	12/18/01	Feldman, et al.	385	24	4/5/00
	oo	6,343,171	1/29/02	Yoshimura, et al.	385	50	4/20/99
	pp	Re. 36, 820	8/15/00	McGinley	361	752	6/3/98

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